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ABSTRACT

0039. A method of forming a SIMS monitor device for determining a doping profile of a semiconductor device structure including providing a plurality of regularly repeating semiconductor structures including a doping profile to form a monitor device including at least one layer of the regularly repeating semiconductor structures; planarizing the monitor device through a thickness of the regularly repeating semiconductor structures to reveal a target surface overlying the doping profile to form a monitor pattern; and, sputtering the target surface over a sputtering area including the monitor pattern through a thickness thereof while simultaneously detecting and counting over a time interval at least one type of species ejected from the target surface according to a secondary ion mass spectroscopy procedure (SIMS).